

Group Name: Seed Biology

Group works on:

Reproductive biology of medicinally, economically important and RET plant species.
Reproductive barriers and reproductive response to abiotic/biotic stress.
Seed- morph taxonomic studies, Seed germination and viability studies.

Objectives:

Reproductive biology of medicinally and economically important/RET plant species with respect to reproductive barriers/ adaptation and reproductive response to abiotic/ biotic stress. Regeneration potential in relation to germination and viability status of seeds of medicinally, economically important and RET species.

Achievements:

Up to 11th Five Year Plan:

- Reproductive biology of three fuel wood tree species i.e. *Prosopis*, *Acacia* and *Albizia* for substandard sites, non-conventional wild RET species i.e. *Canavalia virosa*, *C. gladiata*, *Cajanus cajanifolius*, *C. lineatus*, *C. sericeus*, medicinal plant species i.e. *Rauvolfia serpentina*, *Uraria picta*, *Plumbago zeylanica* and biodiesel plant i.e. *Jatropha curcas* have been worked out. Results thus obtained can be profitably utilized in obtaining increased amount of seed production and can help in the conservation and breeding programmes.
- Morpho-taxonomical studies of seeds of about 155 species of 22 genera namely *Acacia*, *Prosopis*, *Cassia*, *Dalbergia*, *Albizia*, *Leucaena*, *Clitoria*, *Atylosia*, *Rhynchosia*, *Flemmingia*, *Phaseolus*, *Dolichos*, *Medicago*, *Bauhinia*, *Lupinus*, *Verbascum*, *Canavalia*, *Euphorbia*, *Rauvolfia*, *Brassica*, *Argemone*, *Moringa* and micro-anatomical activity of 14 *Cassia* and 12 *Acacia* species have been carried out. The results may be used as an additional parameter for the identification and classification of taxa at species / generic level.
- About 45 legume and 15 non-legume taxa have been studied for their germination, storage, dormancy and viability. The study will help in germplasm collection of high yielding species.
- Floral abnormalities and their impact on fecundity status of plant have been worked out in *Jatropha curcas* and *Uraria picta*.
- Impact of habitat fragmentation and biotic / abiotic stress has been studied on RET *Cajanus* species.
- Impact of fruit predation on reproductive allocation of *Jatropha curcas* has been worked out. The results are useful in formulating the strategies to increase the reproductive outputs.

International Relevance

Some results were exchanged for comparative analysis and cited in the International books and journals. Seed-morphotaxonomical studies are likely to help internationally resolving some of the existing taxonomic confusions. Reproductive biology of RET species will be helpful for the assessment of their reproductive status internationally.

In 12th Five Year Plan:

Preliminary studies on population assessment and flowering behavior of *Woodfordia fruticosa* and *Caltha palustris* – plant species with medicinal and dye yielding and anti-cancerous property respectively, have been carried out at different altitudes of tropical / subtropical / alpine / subalpine region.

Ongoing Projects:

NBRI In house Projects:

1. Taxonomic studies and digitization of plant diversity of India

Supra Institutional network projects:

1. Bioprospection of plant resources and other natural products (BioprosPR)
2. Plant diversity: Studying adaptation biology and understanding/ exploiting medicinally important plants for useful bioactives (SIMPLE).

Outside Agencies like DBT/DST/MOEF Projects: Nil

Foreign Collaborations: Nil

Areas open for Collaboration:

Reproductive phenology, regeneration potential and medicinal component of important medicinal RET plant species

Feed Back Required

National level

Literature and reproductive biological studies related to non-conventional legumes and Indian medicinal and RET plants are still meager, therefore, information on population assessment, domestication and conservation of high proteinacious wild legumes, medicinal, economical and RET plant species are required.

International Level

Online database related to reproductive biology, regeneration potential, updated knowledge of germplasm conservation and seed banks of non-conventional legume crops, important medicinal and multipurpose RET plant species are required.

Publications: 120

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